

Perceived Teacher Enthusiasm and Professional Commitment: The Mediating Role of Boredom and Learning Engagement

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Introduction: Some students in current society do not pursue careers related to their majors after graduation, which may be the result of low professional commitment of college students, and the teaching enthusiasm of college teachers presented in the classroom may influence students' professional commitment. This study considered the effect of teacher enthusiasm on students' emotional state of boredom during class and its effect on students' engagement in learning. This correlational study aims to explore the relationship between perceived teacher enthusiasm and professional commitment as mediated by class-related boredom and learning engagement.

Methods: This study is a correlational design and adopts regression analysis. The respondents were college students (n=358; 68% female, 22% male) of different grades and majors from universities in Wenzhou, China. Questionnaires about perceived teacher enthusiasm, professional commitment, class-related boredom and learning engagement were adopted to measure the study variables.

Results: The results reveal that although there is no significant direct influence between perceived teacher enthusiasm and professional commitment, perceived teacher enthusiasm affects students' professional commitment through students' class-related boredom and learning engagement, and there is an indirect and statistically significant correlation between them.

Conclusion: This study provides insight into the facilitative effect of teachers' increased enthusiasm on students' professional commitment and how this facilitative effect is triggered through the mediating role of class related boredom and learning engagement. Future research should explore the theoretical and teaching significance and how to guide and enhance students' professional commitment.

Keywords: perceived teacher enthusiasm, class-related boredom, learning engagement, professional commitment

Plain Language Summary

This study was interested in examining why some students do not work in their professions after graduation, which can be viewed as a waste of resources and investment in education. It was hypothesized and shown that this low professional commitment of college students may be caused by the lack of enthusiasm of some teachers, high boredom rates among students in classrooms, and low student engagement. This study therefore provides valuable evidence that can be used to encourage students' commitment to their profession. It all starts with the enthusiastic attitude of the teacher and their ability to keep students interested, engaged, and excited about working in their chosen field.

Introduction

In recent years, the number of college graduates in China has been increasing, and it is predicted that there will be 10.76 million college graduates in 2022, which is an increase of 1.67 million compared to last year. This is a historical high in terms of both scale and increment.¹ The impact of the Covid-19 pandemic² on employment remains ongoing, and some industries and enterprises have not yet returned to pre-epidemic levels³ of production and operation. As a result,

there is still uncertainty in the employment market, and some small and medium-sized enterprises have a reduced ability to expand their employment intake. The pandemic has also adversely affected campus recruitment activities.

In this challenging job market, only college students who possess real talent and solid professional knowledge and skills can stand out in the fierce competition. Professional commitment is an important indicator of students' preference and recognition of their majors. The level of professional commitment (PC)⁴ can also influence a student's decision to quit or stay in their profession. University education in China is highly specialized, and most students choose their majors at the beginning of their studies. However, some students do not have full knowledge of their chosen majors when they decide on them after their college entrance examination. Only after studying for a period of time do they realise that their chosen majors are not suitable for them. However, due to the responsibility and obligation of employment, they are forced to continue studying their chosen majors. There are also some students who choose majors based on the good job prospects they offer, rather than their interests and ideals.⁵ In the above situations, the lower professional commitment of college students is not conducive to their professional learning. It makes it difficult for them to obtain a solid professional foundation and consequently, they are less competitive in the job market and are more easily eliminated by society.

Professional commitment is mostly defined as one's dedication to and sense of responsibility for a certain profession.⁶ Therefore, increasing the professional commitment of college students towards their major-related jobs is vital to preserve their study efforts and motivation, which may lead to a stable career in the future.^{7,8}

The university educational environment can have an impact on professional commitment.^{9,10}

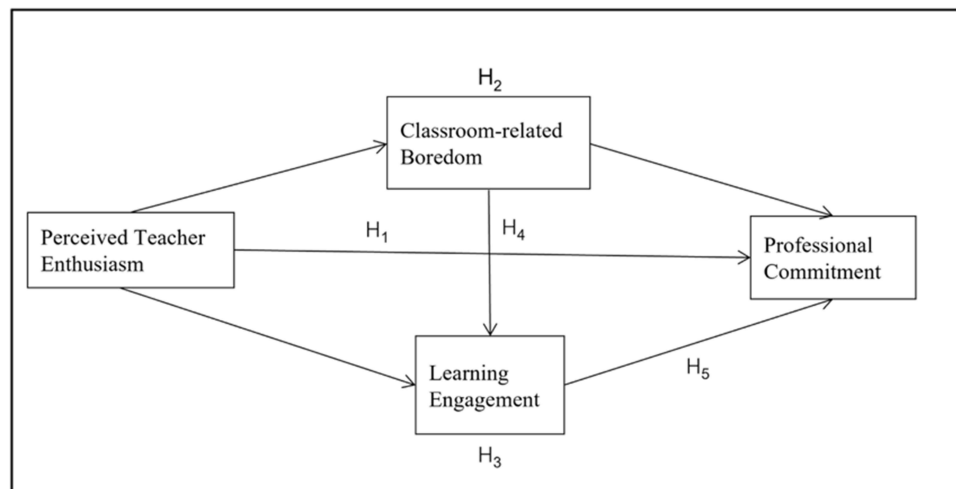
Teacher enthusiasm is a key indicator of students' perceptions of the classroom environment, according to some researchers.¹¹ Teacher enthusiasm is a major factor in successful instruction and determines the desired and distinguishing qualities of competent instructors.¹² Additionally, teacher enthusiasm embodies a healthy sense of emotion and has been shown to promote better academic achievements such as school grades, memory scores, and learning dynamics.^{13,14} A longitudinal study revealed that students who rate their teachers as enthusiastic feel that their basic needs for autonomy, competence, and social relationships are more strongly supported.¹⁵ Teachers' enthusiasm motivates students and therefore improves their recall scores.¹⁶ Similarly, Moè et al found that when information is delivered with enthusiasm, it can increase the level of intrinsic motivation and positive emotions of students, as well as their performance on recall tasks.¹³

Although teacher enthusiasm may significantly contribute to increasing students' professional commitment, few studies have investigated this relationship and its underlying mechanisms. Previous studies have revealed the positive impact of teaching pedagogy in higher education on students' employability.¹⁷ For example, the practical training and syllabus are critical for preparing graduates for the challenges of the workplace.¹⁸ Research on how teacher enthusiasm works suggests that teacher enthusiasm is related firstly to students' motivational and affective outcomes, such as the teacher's enthusiasm to make students feel that learning is fun, and secondly to students' achievement, with the adjustment between the two mediated by students' motivation to learn and their level of concentration in the learning process. In other words, the relationship between teacher enthusiasm and students' ultimate achievement is indirect, and the relationship is also influenced by students' motivation and concentration in learning.¹⁹ Therefore, we hypothesised that the effect of teacher enthusiasm on professional commitment is also indirect and examined class-related boredom and learning engagement as its mediating variables.

Previous studies have revealed the effect of teacher enthusiasm on class-related boredom through longitudinal designs²⁰ but have not directly examined the predictive effect of teacher enthusiasm on professional commitment or considered the possible mediating variables involved. Therefore, this study aimed to examine the relationship between teacher enthusiasm and professional commitment and the mediating variables involved. On the one hand, it can enrich the theory of the teacher's enthusiasm role, and on the other hand, it can be applied in teaching practice to improve the students' professional commitment and thus promote the employment of college students.

Boredom is a common occurrence in classrooms, and has a negative influence on students' learning ability and performance.²⁰ The term, class-related boredom, refers to the feeling of being bored in class, and students' perceived teacher enthusiasm (PTE) has been shown to correlate negatively with class-related boredom.²¹ On the other hand, learning engagement (LE) is a state of mind in which students actively engage in the learning process.²² Schaufeli believes that learning engagement refers to an individual's energy and mental toughness when learning. Students

themselves are aware of the meaning of learning, are enthusiastic, and actively engaged in their learning, and demonstrate a sustained, positive affective state in their learning. He defines it as a group of students who are motivated and enthusiastic about learning, who appreciate the value of learning, and who are actively engaged in a positive state of learning.²³ Previous studies have demonstrated a significant positive association between college students' learning engagement and academic achievements.²⁴ Individuals with high levels of learning engagement also have greater degrees of professional commitment.²⁵ Therefore, we postulated that class-related boredom and learning engagement can mediate perceived teacher enthusiasm and professional commitment. Combining relevant theories and the above literature, we propose a conceptual framework for this study. See Figure 1.



H₁: PTE→PC, H₂:PTE→CB→PC, H₃:PTE→LE→PC, H₄:CB→LE, H₅:PTE→CB→LE→PC[↵]

Figure 1 Modal diagram of the effect of teacher enthusiasm perceived by students on professional commitment, and the media role of class-related boredom and learning engagement.

Literature Review

Professional Commitment

Professional commitment is a person's identification with their professional values and goals, including positive attitudes and behavioural tendencies towards putting in appropriate effort to learn the profession, and maintaining a professional identity.^{26,27} Professional commitment determines the professional's allegiance to the profession, as well as adherence to professional norms or behaviour.²⁸ Meyer and Allen established a three-component model of emotional, normative, and continuance commitment.²⁹ Affective commitment is linked to a person's strong desire to remain in their current job; normative commitment is connected to a person's sense of responsibility to remain in their current job; and continuance commitment is associated with a person's perception of the cost of leaving their current job.²⁹ Commitment to professional learning demonstrates positive features of college students' learning, such as major identity, contentment, willingness to achieve good grades, and positive behavioural performance.^{27,30,31} Professional commitment for college students in this study also refers to whether they plan to work in their professional field after graduation.^{26,32} It has a significant impact on students' career development, learning achievement, and lifelong development.³³ College students with low professional commitment levels are more likely not to pursue a relevant job after graduation, which not only wastes educational resources but also reduces their enthusiasm for studying.^{34,35} Previous studies have found that professional commitment can predict job satisfaction, and it significantly contributes to explaining job satisfaction.³⁶ Moreover, high levels of professional commitment are associated with increased workplace participation and specific citizenship activities, better performance, higher happiness, reduced stress, fewer absences, and work-family problems.³⁷⁻³⁹ Both affective and normative career commitment have a positive correlation with work satisfaction, while no

significant or adverse association was observed between continuance professional commitment and employment contentment.^{30,40} As a result, it is critical to strengthen college students' professional dedication.^{41,42} Therefore, improving students' professional commitment has important benefits for their academic performance and career development, which is an issue that teachers and school institutions should consider.

Effects of Teacher Enthusiasm on Professional Commitment

The characteristics of teacher enthusiasm are similar to emotions like happiness and excitement. They are defined as the degree of satisfaction that teachers feel working in their field.⁴³ Enthusiastic teaching motivates students, enhances their learning experience, and improves their academic achievement.¹⁵ Students perceive teacher enthusiasm as a characteristic of excellent teachers and an essential index of quality pedagogy.⁴⁴ In this study, we adopt the term "teacher enthusiasm" to refer to teachers' positive emotional experiences related to teaching, and the term "student-perceived teacher enthusiasm" to refer to students' opinions about their teachers' displayed enthusiasm, also known as PTE.⁴⁵ We assume that teacher enthusiasm can induce PC. A previous study showed that PTE could increase students' interest, excitement, enjoyment, and learning motivation and promote students' motivation.⁴⁶ Significant interaction affects perceived teacher motivation, enjoyment, attention and personal learning.^{16,47,48} Teachers can display positive motivational signals using both intrinsic and extrinsic motivation cues.⁴⁵ Additionally, student-perceived teacher enthusiasm is related to students' level of classroom mastery and inherent value.⁴⁹ Based on the literature above, teacher enthusiasm significantly influences students' learning by increasing their interest in learning and promoting their learning motivation.^{33,50} We expect that this motivational effect can also indirectly or directly affect students' career motivation, thereby influencing their attitudes and commitment to careers and improving their professional commitment.

Kunter and Keller discovered teacher enthusiasm was associated with high quality instruction and more academic gains for students.⁴⁴ Enthusiastic teachers can apply more productive teaching methods in the classroom and outstanding teaching practices.^{49,51} Teacher enthusiasm has been considered a critical component of teachers' motivation from a theoretical standpoint,⁴³ which has resulted in better learning outcomes such as learning engagement.⁵² Correspondingly, "the emotional contagion hypothesis suggests that enthusiasm can be contagious to students who experience higher positive emotions from a teacher in class".⁵³ Former studies have shown that teachers' enthusiasm for students' interest in the class is transmitted directly, where the immediate effect is mediated by PTE.⁴⁵ As a result, the teacher's enthusiasm may create an emotionally-motivated atmosphere in the classroom and positively impact students' professional commitment.⁵⁴ As demonstrated by the control-value theory, the external environment can increase students' sense of achievement and interest, through students' perceptions of the mediating role of control and value.²⁰ Enthusiastic teachers, then, can not only make students feel emotionally positive through emotional contagion but can also act as examples of imitative learning to motivate students to understand the value of learning.^{55–57} A research study on secondary school students' learning in mathematics found that PET was significantly and positively related to students' interest in mathematics and further improved their mathematics achievement.^{12,58} This study, therefore, infers that the enthusiasm of teachers can also increase students' interest in the major and enhance their professional commitment.

This study assumed that PTE might influence PC by increasing affective and normative professional commitment. When teachers are more enthusiastic in the classroom, they utilise more words, gestures, and eye contacts. Also, they are more likely to encourage and inspire students. According to the emotional contagion hypothesis, teacher enthusiasm is contagious and has a beneficial influence on student emotions.⁵⁹ Thus, students' perceptions of instructor enthusiasm, particularly from professors who teach the required significant courses, can increase student participation and enjoyment in their major, promoting student acceptance of the programme and making students more likely to continue to pursue it.⁶⁰ Normative professional commitment refers to a person's belief that they owe it to the profession to "give back" the advantages obtained, such as training.⁶¹ Because an instructor with enthusiasm for this major may have professionally relevant experience, they can generate interest in the teaching profession by introducing students to their unique experiences in these jobs, career growth, benefits, and industry standards during class.⁶² This may lead to a strong sense of identification with the profession among students and favourable sentiments about being part of it. Professional commitment is frequently maintained when people perceive significant expenses related to quitting their job.^{63,64} When professional course teachers' enthusiasm increases, students' learning engagement also increases, resulting in increased potential and significant investment in their profession that would be lost or diminished if they change their careers.^{65,66}

Based on our previous discussions, we argue that students with higher levels of PTE (perceived teacher enthusiasm) are more committed to their profession than students with lower levels of PTE, despite limited empirical evidence on the direct relationship between professional commitment and PTE. Our hypothesis is that:

Hypothesis 1: PTE can positively predict students' professional commitment.

Mediation Effect of Class-Related Boredom and Learning Engagement

Class-related boredom is an unpleasant and low arousal emotional state that causes learners to lose interest in what they are studying and to be unable to focus on it. It is commonly experienced and frequently complained about by students during classroom learning.^{67,68} There are many negative consequences associated with the phenomenon of class-related boredom, such as a drop in academic and professional performance, an increase in the likelihood of leaving the educational setting, and an increased risk of developing mental disorders. That is why it is essential to reduce boredom in the classroom for students.^{21,68,69} This phenomenon is also commonly experienced by Chinese students at university.⁷⁰ In this study, class-related boredom pertains to a kind of emotional engagement.

The control-value theory states that experiencing class-related boredom is considered to be a low arousal state.^{71,72} In an empirical study, student boredom was found to mediate the relationship between perceived teacher enthusiasm and students' behavioural engagement in English classes.⁷³ The interest that students have in learning is also a negative predictor of their likelihood of experiencing class-related boredom.^{74,75} Due to the negative effects of classroom-related boredom, it is important to take the issue seriously.⁷⁶

Researchers have categorized the factors that can affect a person's chances of being bored into three categories: individual, environmental, and related to the fit of individuals and the environment.⁷⁷ Teacher enthusiasm might be an environmental antecedent to the class-related boredom.⁷⁸ A study found that PET is negatively associated with their CB at the class level.⁷⁹ Students who perceive their teachers as more enthusiastic about education are more likely to think that their autonomy and tasks are valued. This belief can help reduce class-related boredom.^{67,80} The perceived enthusiasm of students regarding their teacher was also associated with a stable reduction in class-related boredom among those with different levels of perceived task difficulty and proneness.⁸¹ PTE significantly and negatively predicted their CB experiences.

The effects of boredom on various aspects of students' lives were also analyzed, such as their self-efficacy in learning, motivation, and behavioral problems.⁸² As an unpleasant emotional state, the boredom students experience in class may accumulate and eventually diminish the commitment they make to their potential career. In addition, boredom and professional commitment were negatively correlated.⁸³

Based on previous literature, we argue that CB might reduce students' PC. Furthermore, we hypothesize that PTE might affect PC through boredom, and reduced PTE may cause higher levels of CB, thereby reducing PC. Thus, we hypothesized that:

Hypothesis 2: The impact of perceived teacher enthusiasm on professional commitment is mediated by class-related boredom.

Learning engagement is a conscious, goal-directed action and reflection that shows deep and meaningful involvement in learning activities.⁸⁴ The importance of students' learning engagement is acknowledged as an essential component of delivering high-quality education.⁸⁵ The role of the teacher, the class structure, and the discussions among the students are some of the factors that can influence a student's engagement in class.⁸⁶ When given an opportunity, an engaged learner is thought to begin, persist, or concentrate on understanding and applying new knowledge or abilities; use deep information processing or problem-solving procedures; and have favourable attitudes to the learning process.⁸⁷ Students' learning engagement is characterised by the degrees of attention, curiosity, interest, interaction, participation, and sense of autonomy and control experienced by students.⁸⁵ Engagement involves more than participation in an activity; it also includes emotions, feelings, and finding value in an experience.^{88,89} Learning engagement in this study pertains to the behavioural engagement of students when learning a major course.

Students' LE may play an intermediary role between PTE and PC. Teacher enthusiasm and student involvement provide a consistent affective-motivational atmosphere across the board, which may increase learning engagement behaviours.^{52,89} A previous study revealed that teacher enthusiasm might predict LE.⁷³ Furthermore, considerable empirical research has shown that PC can predict LE.⁹⁰ College students' PC motivates them to participate actively in their studies and put extra effort and time into the learning process.⁹¹ Based on these previous results, we hypothesise that:

Hypothesis 3: The impact of perceived teacher enthusiasm on professional commitment is mediated by learning engagement.

According to Pekrun's control-value theory of academic emotion, intellectual emotion influences an individual's allocation of cognitive resources, and LE is the extent to which students use their cognitive resources in learning activities.⁷¹ Academic emotion has an effect on learning engagement. An empirical study found that positive low-arousal classroom academic emotions predicted positive LE, while negative low-arousal classroom academic emotions predicted negative LE.⁵³ Positive academic emotions in the classroom improve students' interest in the topic, making them more eager to spend their cognitive resources in the classroom and resulting in increased LE.⁵³ Students' motivation and interest in the classroom are weakened when they experience more negative emotions.⁹² Their ability to invest more sustained energy in learning is negatively affected,⁹³ which results in distractions, wandering, and decreased student engagement in the classroom environment. As a result, we concluded that CB and LE are negatively associated, and that lowering CB might boost students' LE. Thus, we hypothesise that:

Hypothesis 4: Class-related boredom is negatively associated with learning engagement.

According to previous findings, PTE has the potential to influence students' learning process via certain internal variables, thereby decreasing students' CB and increasing LE. PC is an internal motivational driver of LE. When students are engaged in the classroom, they generate more positive reinforcement, such as good grades in school and a deeper understanding of and passion for their major, thereby increasing their PC. After discussing the mediating effects of CB and LE separately, we found that CB and LE may be negatively correlated,⁸³ and CB and LE can form a chain mediator. When increased PTE reduces students' CB, students become more engaged in classroom learning, listen carefully to participate in classroom responses, and become more engaged in professional courses, thus increasing their PC. Therefore, we hypothesise that:

Hypothesis 5: Class-related boredom and learning engagement mediate the relationship between perceived teacher enthusiasm and professional commitment by lowering class-related boredom and increasing learning engagement.

Materials and Methods

Participants

This study adopted a cross-sectional design. We used whole-group sampling to select 1st to 3rd-year college students from Wenzhou, Zhejiang Province, China. A total of 396 students completed the survey; however, after excluding data that exceeded the mean \pm 3 standard deviations, data from 358 students were included in the analysis (243 females, 115 males, SD = 1.53). The participants were from more than 20 disciplines, including humanities, education, science, and engineering. All participants consented to participate. Before distributing the questionnaires, we communicated effectively with the students and obtained their consent, including the publication of their anonymised responses.

Measures

Perceived Teacher Enthusiasm

Three items edited by Keller et al were used: "Our class teacher teaches with passion", "Our teacher enjoys teaching more than other teachers", and "Our class teacher tries to inspire students". Students were asked to evaluate their classroom experience using these items. The Cronbach's alpha for the questionnaire in this study is 0.978. The questionnaire consists of a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Class-Related Boredom

This study used the class-related boredom scale from the Achievement Emotions Questionnaire.⁹⁴ The tool contains 11 items, but for the current study, two items were selected to evaluate class-related boredom: “I get bored” and “The lecture bores me”. Students were asked to use a five-point Likert scale to evaluate their current classroom experience, ranging from 1 = strongly disagree to 5 = strongly agree. A higher aggregated score indicates higher levels of class-related boredom. The Cronbach’s alpha for this study is 0.905.

Learning Engagement

Skinner et al used the Behavioral Investment Questionnaire to elicit behavioral, affective, and slacking questions in their study. The behavioral investment sub-questionnaire consisted of five items that described students’ efforts, attention, and persistence in learning activities.⁹⁵ The questionnaire adopted the Rickert scale 4-point scoring method. The higher the score, the higher the learning engagement. In this study, the questionnaire was back-translated by two doctoral students majoring in psychology to make it suitable for the Chinese cultural background, following the principle of translation. The scoring method of the scale was slightly modified for research needs, and the Richter 5-point scale was used to score the questionnaire. The internal consistency coefficient of this questionnaire was 0.963.

Professional Commitment

The existing four-item scale of Commitment to Organizations and Occupations: Extension and Test of a Three-Component Conceptualization was used.⁶¹ These items were adapted to relate specifically to students’ semester courses. The internal consistency coefficient of this questionnaire was 0.810.

Data Analysis

The data were analysed using SPSS version 19.0 and the PROCESS macro program 3.3.⁹⁶ Descriptive statistics and Pearson product-moment correlation were used to examine the variables. To test the hypotheses of this study, the chain mediation model was evaluated using Model 6 in PROCESS, and the parameter estimates’ 95% confidence interval (CI) was obtained using the bias-corrected bootstrap method with 5000 samples. The significance level was set at $p < 0.05$.

Results

Common Method Deviation Test

Studies have indicated that the use of the same data sources, measurement environments, and other characteristics can result in artificial covariation between predictor and effect variables, leading to common method bias, which needs to be tested and controlled using statistical methods. The Harman one-factor test was employed to assess the common method bias. The results revealed six common factors whose eigenvalues were more significant than 1. However, the first common factor accounted for only 34.472% of the variance, which was less than 40%. As a result, the standard method bias was found to be insignificant in this study.

Descriptive Analyses

The correlations and descriptive statistics are presented in Table 1. The results indicate that the majority of participants rated their teachers as highly enthusiastic about teaching. The participants experienced low levels of boredom, and

Table 1 Mean, Standard Deviation, and Intercorrelations of All Measures

Variables	M	SD	1	2	3
1. Perceived teacher enthusiasm	4.71	0.70	–		
2. Class-related boredom	1.46	0.77	–0.433**	-	
3. Learning engagement	4.35	0.83	0.480**	–0.574**	-
4. Professional commitment	3.53	0.69	0.280**	–0.363**	0.475**

Note: N =358, **p < 0.01, ***p < 0.001.

medium to high levels of commitment to learning and professional commitment. The data suggest that the variables in question were normally distributed, enabling subsequent parametric analyses.

Table 1 displays the correlations among PTE, CB, LE, and PC. PTE was positively correlated with LE ($r = 0.480$, $p < 0.01$) and PC ($r = 0.280$, $p < 0.01$), and negatively correlated with CB ($r = -0.433$, $p < 0.01$). CB was negatively correlated with PC ($r = -0.363$, $p < 0.01$). LE was positively correlated with PC ($r = 0.475$, $p < 0.01$). In other words, students who perceived greater enthusiasm from their teachers tended to have more enjoyable and engaging learning experiences, and experience less boredom.

Effect of PTE on PC: Chain Mediation of CB and LE

All variables were standardised, and the mediating role of CB and LE in the relationship between PTE and PC was analysed using Model 6 of the PROCESS software developed by Hayes.⁹⁷ The model used PTE as the independent variable, PC as the dependent variable, and CB and LE as the mediating variables. The results are shown in Figure 2.

The results of the path coefficients are shown in Figure 2, and the entire regression equation is significant, $R^2 = 0.24$, $F_{(3, 354)} = 37.1$, $p < 0.001$. However, in the direct path, student PTE did not significantly predict PC ($\beta = 0.04$, $p = 0.45$). Hypothesis 1 predicted that perceived teacher enthusiasm positively predicts students' professional commitment; thus, hypothesis 1 does not hold.

In the mediated path with CB as the mediating variable, student PTE significantly predicted CB negatively ($\beta = -0.48$, $p < 0.001$), and CB significantly predicted PC negatively ($\beta = -0.11$, $p < 0.05$). In the mediated path with LE as the mediating variable, PTE significantly predicted LE positively ($\beta = 0.34$, $p < 0.001$), and LE significantly predicted PC positively ($\beta = 0.32$, $p < 0.001$). In the chain mediated path formed by CB and LE, CB significantly predicted LE negatively ($\beta = -0.48$, $p < 0.001$).

The outcome of the bootstrapping tests, mediator effects, and confidence intervals are provided in Table 2. As it is shown in Table 2, the prediction of PC by PTE was done through the complete and significant mediating effect of CB ($p < 0.05$). PTE mediates PC via LE and is significant ($p < 0.05$). On the basis of the significance of the path coefficient in Table 2, we investigated the paths of any possible indirect effects. The indirect effects were analysed using a bootstrapping test with deviation correction. Hypothesis 2 predicted that CB would be a mediator of the indirect effect of PTE on PC. The indirect effect of PTE via CB on PC was significant (0.05, $p < 0.05$, 95% CI: [0.00, 0.12]), supporting hypothesis 2. Hypothesis 3 proposed that LE would mediate the indirect effect of PTE on PC. The indirect effect of PTE via LE on PC was significant (0.11, $p < 0.05$, 95% CI: [0.05, 0.21]), and therefore Hypothesis 3 was supported. Hypothesis 5 postulated that LE and CB mediate indirect effects of PTE on PC. The indirect effects of PTE on PC via CB and LE were statistically significant (0.07, $p < 0.05$, 95% CI: [0.04, 0.12]); therefore Hypothesis 5 was supported. The total effects of PTE on PC were significant (0.24, $p < 0.05$, 95% CI: [0.13, 0.39]).

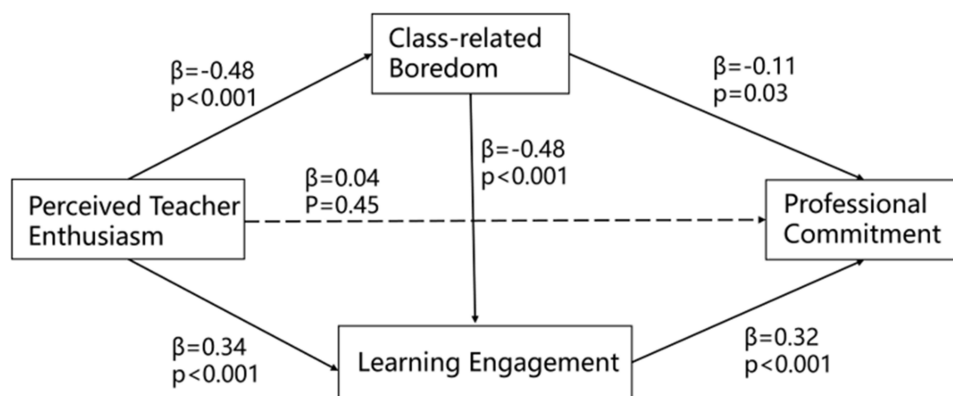


Figure 2 Graphical depiction of the mediation model (using PROCESS, model 6, bootstraps=5000).

Table 2 Mediator Effects and Confidence Intervals

Influence Path	Effect of Value	95% CI	Effect Volume
Total indirect effect	0.24	[0.13, 0.39]	85.27%
PTE →CB →PC	0.05	[0.00, 0.12]	19.25%
PTE → LE → PC	0.11	[0.05, 0.21]	39.20%
PTE →CB→ LE→ PC	0.07	[0.04, 0.12]	26.82%

Note: N =358.

Discussion

The present study investigated the predictive effect of PTE on undergraduates' PC and the mediative effects of undergraduates' CB and LE. The results showed that although students' PTE could not directly predict their PC, CB and LE did mediate between them. These results highlight the relationship between PTE and pupils' PCs and the role of teacher enthusiasm. This study may also guide pedagogues on how to increase students' professional engagement by manipulating class-related boredom and learning engagement. This mediating effect of classroom boredom on teacher enthusiasm is consistent with previous research.

Student's PTE Cannot Directly Predict Their PC

To investigate the predictive effect of students' PTE on their PC, a macro model was used. First, we hypothesised that students' PTE would predict PC significantly (see Figure 1). However, our results revealed no significant direct effect between perceived teacher enthusiasm and students' professional commitment. Thus, hypothesis 1 is rejected. Previous research has shown that the effect of PTE on student achievement is indirect and that the relationship is also influenced by student motivation and engagement in learning. This is consistent with the conclusions reached in this study.¹⁸ Enthusiastic teachers stimulate and enhance students' interest in learning by first making them perceive the teacher's own values and interest gained from knowledge possession through implication in the process of education and teaching, and gradually transforming them into the students' own values.⁵⁸ Keller et al argue that the theoretical explanation of interest generation can be thought of as the teacher enthusiasm received by the student providing the environmental trigger that leads to the student's initial contextual interest, which is transformed into the student's personal interest when the student receives personal values that are amplified by the enthusiastic teacher.⁹⁸ Although there is a positive correlation between PTE and PC, no relevant studies have examined a direct positive predictive effect of teacher enthusiasm on professional commitment, and although we discussed how teacher enthusiasm can elicit professional commitment from the three dimensions of professional commitment, this manifestation was not evident in the present study. This could be because of a lack of mediating variables. We hope that future studies will examine this relationship to determine if there is a direct effect. Nevertheless, we found the existence of intermediary paths.

Mediating Role of CB and LE

This study found no significant relationship between PTE and PC, but we then focused on their underlying mechanism and found a mediating role of CB and LE. The results show that both CB and LE play a mediating role between PTE and PC, but they can also form a chain of mediation.

In conclusion, teachers' verbal and nonverbal behaviours inside and outside the classroom seem to shape students' perceptions of teachers' enthusiasm for teaching. These perceptions shape assessments of such perceived dynamics, including CB and LE, which further contribute to the formation of students' PC.

Figure 2 shows the mediating model and the standardised path coefficients. The mediation framework shows how the PTE influences the teacher and the students, thereby improving the motivation in the classroom and reducing the CB, thus generating more attractive classroom environments, leading to more engaged learning behaviours, and influencing the PC of the students.

The application of an ecological viewpoint allows one to see that students' PC is a combination of perceptions of situational factors (eg, teacher characteristics) and personal factors (eg, emotion, commitment). The study also identified a pathway from teacher emotion to student emotion, that is LE and PC.

Class-related boredom is a category of negative emotions. It includes dissatisfaction and low arousal, as well as the induction of irrelevant thoughts, time prolongation, and the motivation to leave the boredom context.⁹⁹ This study revealed that higher perceived teacher enthusiasm led to a decrease in students' classroom-related boredom. It also showed that perceived teacher enthusiasm was a positive and negative predictor of classroom-related boredom. The same results were obtained in Cui et al's study.¹⁰⁰ A study of Chinese students' English language learning found that students' class-related boredom was found to mediate the relationship between perceived teacher enthusiasm and students' behavioural engagement in English classes, which also supports the findings of this study.⁷³ Lowering CB can increase students' class achievement. In addition, reduced CB affects students' motivation, and a previous empirical study revealed that boredom is a negative emotion and that lowering boredom allows people to be more intrinsically motivated in their work activities. Furthermore, teacher enthusiasm can increase students' emotional commitment to their major by increasing their interest towards their course.¹⁰¹ Teacher enthusiasm is also related to more and higher-quality academic outcomes, implying that it can increase students' engagement in major-course learning by increasing their level of involvement.^{49,102} While current college students are not officially working yet, college is an important link to careers and a significant period for students to acquire career-related knowledge. Many courses are aligned with future work practices. For example, students in teaching majors acquire their teaching skills through simulated classes, while clinical medicine and law students undergo professional skill training as part of their courses. In these courses, students partially experience their future careers and learn to some extent about the rules of their profession, which can increase their professional commitment.³² Increasing the enthusiasm of university teachers can be very beneficial to students' professional learning.

One of the components that are adversely affected by boredom is learning engagement.¹⁰³ Learning engagement has been divided into different categories, including behavioural engagement, such as effort; affective engagement, such as high levels of enthusiasm; cognitive engagement, such as the use of learning strategies and self-regulation; and substitution engagement, such as the amount of conscious effort to enrich the learning experience.¹⁰⁴ Among the above categories, behavioural engagement is very important in the learning process as it is related to the actual behaviour of the individual's learning talent, which is also the concept used in this study.¹⁰⁵ Related studies have found that reducing boredom increases learning engagement, which is consistent with the results of this study.¹⁰³ Furthermore, as students' interests grow and they develop a positive attitude towards the course and major they are pursuing, they will be motivated to study more, resulting in increased student LE. While reduced CB can cause an increased behavioural engagement in students, this study also measures affective commitment and thus exhibits more engaged behaviour. We found that reduced CB causes increased LE, and the two factors can form a chain mediator.

In conclusion, this study revealed that while teacher enthusiasm has no direct effect on PC, it can increase students' positive affective and behavioural involvement towards their major. The more enthusiastic the teacher, the more positive the students' attitudes towards the professional program. As a result of the mediating effects of CB and LE, we conclude that PTE has a significant impact on PC. That is, the more enthusiastic students perceive their teachers, the less boredom they may experience in the classroom, and the more engaged they may become in learning, making it more likely that students will persist in jobs related to their field in the future.

Implications of the Study

Using cross-sectional data from a Chinese college, this study confirms that PTE can increase students' PC by mediating CB and LE. The present results show that college students experience reduced CB and are more engaged in learning with high PTE, which ultimately increases their PC.

Based on the importance of teacher enthusiasm in the process of educating and teaching, scholars have studied it from different perspectives and have produced many research findings on the concept and measurement of teacher enthusiasm, the factors that generate and constrain it, and the effects and mechanisms of teacher enthusiasm. These findings have laid a solid theoretical and practical foundation for people to deepen their knowledge and understanding of teacher

enthusiasm and to explore how to stimulate teacher enthusiasm and how to fully exploit the potential effects of teacher enthusiasm.

The essential role of teacher enthusiasm in increasing students' PC should be recognised by researchers and higher education professionals. Teacher enthusiasm enables them to have a better understanding of the multi-dimensional structure, transmission, and impact of teachers' enthusiasm on students' PC. Our findings can aid teachers in the design of activities that allow students to fully participate in classroom activities. Teacher trainers can emphasise the importance of enthusiasm in teacher training. They can also emphasise ways to express enthusiasm verbally and non-verbally.

Combined with humour, concern, and compassion, these strategies can lead to positive emotional results that increase student engagement and, in turn, student professional commitment.

This study also provides methods for teaching practices on how to reduce student boredom. The study confirms that enthusiastic teachers can make students perceive more emotional value and learning value in the classroom through emotional contagion and modelling roles, and can reduce students' boredom related to classes regardless of curriculum differences and teaching quality. In turn, reducing class-related boredom can increase student engagement in learning. It is also a simple and effective method that teachers and pedagogical researchers should recommend and promote teacher enthusiasm to benefit more students.

Finally, the study recommends that families and individual students should also actively cooperate with society and schools in forming a high level of professional commitment. At the beginning of the school year, parents and children should consider the needs of society, future development and the interests of their children in a comprehensive and integrated manner when choosing a major for volunteering. Additionally, college students in school should approach their major courses with seriousness, seize every opportunity to understand and learn about their own major, develop their professional interests and improve their professional commitment.

Limitations and Future Research

This study has some limitations. Firstly, it conducted cross-sectional sampling of college students' professional commitment. The willingness of professional commitment in college may not accurately predict the future. Professional commitment can change over time, for example, by tracking whether future students are pursuing professionally relevant careers. Future research could conduct a longitudinal study that examines changes in college students' professional commitment over a long period. Secondly, as an environmental factor, teacher characteristics (enthusiasm) are associated with stimulating student boredom and various aspects of learning (engagement). Thirdly, students' perceptions of teacher enthusiasm are not always completely accurate and are related to individual student traits, meaning that assessments of teacher enthusiasm are somewhat biased. Future research could use a more standardized approach to measurement. Finally, the scales used in this paper were all borrowed from research in educational psychology, whereas for affective and career-related measures there is a need to include a social dimension, which future research could consider.

Conclusion

The effect of PET on students' professional commitment was investigated in this study. Although the results showed that PET did not directly predict professional commitment, students' perceptions of teacher enthusiasm could increase students' professional commitment by reducing their class-related boredom and increasing their engagement in learning. This suggests that by changing the classroom atmosphere and students' engagement in learning, increasing teacher enthusiasm in class can indirectly promote students' professional commitment. This study enriches the literature in the area of teacher enthusiasm and offers suggestions on how to increase students' commitment to the profession. This is a viable solution in the current challenging employment climate for university students. In addition, this study found a mediating effect between classroom boredom and learning engagement. This confirms that high PET reduces CB and that reduced CB increases student learning engagement. These findings are consistent with some previous studies.

Data Sharing Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author Contributions

X-qY, Y-yZ, KZ, and G-yC contributed to the conception construction, all authors contributed to data analysis, drafting or revising the article, have agreed on the journal to which the article will be submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflict of interest. The present study was in accordance with the ethical standards of The Research Ethics Committee of School of Psychology, Beijing Normal University. (The corresponding author of this paper is Dr Cui, who graduated from Beijing Normal University. This research design is based on his doctoral thesis of Beijing Normal University, so the present study was in accordance with the ethical standards of The Research Ethics Committee of School of Psychology, Beijing Normal University). Consent to participate in the present study had been obtained before the data collection.

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